

R E M A R K S

This is in response to the final Official Action mailed October 17, 2002, for the above-identified patent application. Claims 3 and 4 have been canceled. Claims 1-2 and 5-12 are now pending in the application. Claim 1 has been amended as is further discussed below.

Claims 1-12 have been rejected under 35 U.S.C. § 103(a) as being obvious in view of U.S. Patent No. 4,767,833 to Yumoto *et al.* in combination with JP 56-41216. The Examiner states that Yumoto *et al.* discloses a transparent, thermoplastic resin composition obtained by graft polymerizing 50-95 parts by weight of a monomer mixture consisting essentially of methyl methacrylate and styrene in the presence of 5-50 parts of a rubbery substance which comprises (A) 40-80% by weight of "small aperture" styrene-butadiene copolymer latex and (B) 20-60% by weight of "large aperture" styrene-butadiene copolymer latex. The styrene:methyl methacrylate ratio is 20-55:30-60. The Examiner acknowledges that Yumoto *et al.* does not teach a polybutadiene latex. However, the Examiner takes the position that JP 56-41216 teaches the interchangeability of polybutadiene and styrene-butadiene in the context of transparent thermoplastic resins, and that therefore it would have been obvious in view of the teachings of JP 56-41216 to replace the styrene-butadiene latex of Yumoto *et al.* with polybutadiene to obtain the present invention.

However, it is respectfully submitted that Claims 1-12 are nonobvious and patentable in view of Yumoto *et al.* in combination with JP 56-41216. Claim 1 has been

amended to expressly recite the limitations of now canceled Claims 3 and 4, i.e. that the small aperture polybutadiene rubber latex has a particle diameter of 600-1500 A, a gel content of 70-95%, and a swelling index of 12-30, and the large aperture polybutadiene rubber latex has a particle diameter of 2600-5000 A, a gel content of 70-95%, and a swelling index of 12-30. In contrast, Yumoto et al. discloses a small aperture SBR (styrene-butadiene-rubber) latex having a gel content of 30-100% an average particle diameter for the small aperture rubber latex of 0.05-0.02 μ m, a large aperture latex having a gel content of 10-80%, and an average particle diameter for the large aperture rubber latex of 0.2-3 μ m. Moreover, Yumoto et al. does not discuss a swelling index.

Accordingly, Yumoto discloses a very broad range of values for the gel content and the particle diameter for both the small aperture rubber latex and the large aperture rubber latex, and does not disclose or suggest any value range for the swelling index, in contrast to the present invention. Furthermore, as described in the enclosed Declaration under 37 C.F.R. § 1.132 ('132 Declaration'), the combination of high gel content and low swelling index of the rubber latex leads to higher transparency. In particular, as further described in the enclosed 132 Declaration, the high gel content and low swelling index ensure that the number of monomers in the rubber latex is small and that grafted monomers are concentrated in the shell portion. The concentration of grafted monomers in the shell portion leads to higher transparency, because the refraction index of the shell may be readily adjusted to be equal to the refraction index of the rubber latex core.

Accordingly, the transparency may be advantageously increased using a rubber latex having a relatively high gel content of 70-97% and a relatively low swelling index of 12-

30 as claimed in Claim 1 as amended. Moreover, the use of a large aperture rubber latex having a relatively large particle diameter of 2600-5000 Å as claimed in Claim 1 increases the shock strength of the rubber latex, as shown by comparison of the Notch Isod shock strength measured in Example 1 of the enclosed 132 Declaration, in which a small and large aperture rubber latex were used, and Example 4, in which only a small aperture rubber latex. The shock strength in Example 1 is higher than the shock strength in Example 4. The high transparency and superior shock strength of the invention claimed in Claim 1 are not obvious in view of Yumoto et al., since Yumoto et al. does not disclose or suggest the advantage of combining a high gel content, a low swelling index, and a large aperture rubber latex to obtain excellent transparency and shock strength. Accordingly, it would not have been obvious to a person with ordinary skill in the art to obtain the composition having a particle diameter, gel content, and swelling index for both small and large aperture polybutadiene rubber latex recited in Claim 1. JP 56-41216 also fails to disclose the combination recited in Claim 1 and therefore does not cure the deficiencies of Yumoto et al. Similarly, Yumoto et al., alone or in combination with JP 56-41216, does not disclose or suggest the advantageous combination of particle diameter, gel content, and swelling index for both small and large aperture polybutadiene rubber latex recited in independent method Claim 8. Accordingly, it is respectfully submitted that Claims 1 and 8 (and all the claims ultimately dependent thereon) are nonobvious and patentable in view of Yumoto *et al.* in combination with JP 56-41216. In view of the foregoing, withdrawal of the rejection under 35 U.S.C. § 103(a) of Claims 1-12 is respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version with Markings to Show Changes Made."**

In view of the foregoing amendments and remarks, reconsideration and allowance of all the claims in this application are respectfully requested.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Please cancel Claims 3 and 4.

Please amend the claims as follows:

1. (Amended) A thermoplastic transparent resin composition comprising:

3-15 parts by weight of small aperture polybutadiene rubber latex;

5-25 parts by weight of large aperture polybutadiene rubber latex;

40-70 parts by weight of a methacrylic acid alkylester compound or an acrylic acid alkylester compound;

15-30 parts by weight of an aromatic vinyl compound; and

1-20 parts by weight of a vinylcian compound,

wherein the small aperture polybutadiene rubber latex has a particle diameter of 600-1500 A, a gel content of 70-95%, and a swelling index of 12-30, and the large aperture polybutadiene rubber latex has a particle diameter of 2600-5000 A, a gel content of 70-95%, and a swelling index of 12-30.